

REMARKS

The foregoing amendments and these remarks are in response to the Office Action dated October 17, 2007. This amendment is timely filed.

At the time of the Office Action, claims 1-14 were pending in the application. In the Office Action, objections were raised regarding the drawings. In addition, claim 4 was objected to and claims 1-5 and 9-12 were rejected under 35 U.S.C. §103(a). Claims 6-8, 13 and 14 were indicated to be allowable if rewritten in independent form. The objections and rejections are discussed in more detail below.

I. Objections to the Drawings

The Office Action asserts that Figs. 1 and 2 should have axis labels, and that Fig. 3 should be designated by a legend such as "Prior Art". Corrected drawing sheets are enclosed herewith to overcome the objections, withdrawal of which is respectfully requested.

With regard to Fig. 3, applicant notes that Fig. 3 does not show the same arrangement as that shown in Schöb *et al.* (U.S. Patent No. 6,053,705). For example, in the arrangement of Schöb, the Hall sensors 15 are located on the surface of tooth 7f in Fig. 5a, whereas Fig. 3 of the present application shows the Hall sensor 20 located in a different position. Nevertheless, applicant has labeled Fig. 3 as being "Prior Art" in the interests of expediting prosecution of the present application.

II. Objections to the Claims

Claim 4 was objected to under 37 C.F.R. §1.75(c) as being of improper dependent form for failing to further limit the subject matter of a previous claim. Notably, claim 1 recites the acquisition of a load angle or delay θ , such as a phase shift angle between a network voltage applied to the motor terminals and the counter electromotive force. What is acquired is the load angle θ , which does not require the actual acquisition of the network voltage applied to the motor terminals. A method for obtaining the load angle θ without acquiring the network voltage is

described in the present application as filed, for example on page 5, line 18 to page 6, line 5. The described method makes use of a square-waved network synchronism signal (24) and the edge of the sensor signal (20), indicating the position of the rotor, is proportional to the load angle θ . The actual acquisition of the value of the network voltage is introduced only in claim 4 as an additional advantage, aimed at enhancing the reliability. A method according to claim 4 permits a more realistic acquisition of the load angle θ , and is believed to further limit claim 1.

III. Rejections on Art and Allowable Subject Matter

Claims 1-4 and 9-12 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,239,563 to Kunz (hereafter "Kunz"), U.S. Patent No. 5,728,951 to Van Cleve *et al.* ("Van Cleve"), the admitted prior art and U.S. Patent No. 6,710,562 to Kalb *et al.* ("Kalb"). Claim 5 was rejected under 35 U.S.C. §103(a) as being unpatentable over Kunz, Van Cleve, the admitted prior art and Kalb, and further in view of U.S. Patent No. 6,093,986 to Windhorn ("Windhorn"). Claim 12 was rejected under 35 U.S.C. §103(a) as being unpatentable over Kunz, Van Cleve, the admitted prior art and Kalb, and further in view of U.S. Patent No. 3,492,555 to Shibata ("Shibata"). Claims 6-8, 13 and 14 were objected to as being dependent upon a rejected base claim, but were indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant respectfully traverses the rejections, and submits that independent claims 1 and 9 are allowable.

Applicant notes that the present application permits the realization of a pump without any kind of flow rate sensor. According to the present claims, the flow rate is measured indirectly by sensing a pump operation variable, such as the load angle. In a permanent magnet synchronous motor, the load angle represents the phase shift between the voltage applied to the terminals of the motor and the counter-electromotive force. The present application relates to pumps, because the method is conceived for measuring the flow rate. Moreover, the application concerns pumps driven by a synchronous motor, because in induction motors it is not possible to rely on a table between flow rate and electric values.

With regard to the rejections, the Office Action combines four prior art documents to reject claims 1 and 9 for obviousness. The need to combine so many documents strongly

suggests invention claimed is not in fact obvious. In addition, Applicant notes that Van Cleve teaches the realization of a Coriolis flowmeter, which is not relevant to the present claims. The present application aims at obtaining a pump without any flowmeter, as opposed to with the use of a Coriolis flowmeter.

Kalb also is not relevant to the present claims. Kalb relates to a synchronous motor driven adjustment device in motor vehicles, and does not teach or suggest its use in connection with a pump. With regard to claim 5, Windhorn is not directed to solving technical problems related to pumps. With regard to claim 12, Shibata describes an electric machine with fielding windings, not a machine embedded with permanent magnets. Moreover this reference is devoted to machines in general, both motor and generators, and it is not aimed at solving technical problems related to pumps.

For the foregoing reasons, claims 1-14 are all in condition for allowance.

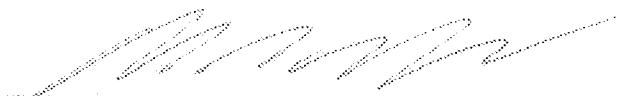
IV. Conclusion

Applicant has made every effort to present claims which distinguish over the prior art, and it is thus believed that all claims are in condition for allowance. Nevertheless, Applicant invites the Examiner to call the undersigned if it is believed that a telephonic interview would expedite the prosecution of the application to an allowance. In view of the foregoing remarks, Applicant respectfully requests reconsideration and prompt allowance of the pending claims.

Respectfully submitted,

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